



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

23419 7590 04/09/2009

COOLEY GODWARD KRONISH LLP

ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
Washington, DC 20001

EXAMINER

WANG, LIANG CHE A

ART UNIT

PAPER NUMBER

2453

DATE MAILED: 04/09/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,096	09/12/2003	Brian D. Petry	ASTU-006/01US 017622-2017	6582

TITLE OF INVENTION: SYSTEM AND METHOD FOR FACILITATING FAILOVER OF STATEFUL CONNECTIONS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$0	\$0	\$755	07/09/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

23419 7590 04/09/2009

COOLEY GODWARD KRONISH LLP

ATTN: Patent Group
 Suite 1100
 777 - 6th Street, NW
 Washington, DC 20001

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,096	09/12/2003	Brian D. Petry	ASTU-006/01US 017622-2017	6582

TITLE OF INVENTION: SYSTEM AND METHOD FOR FACILITATING FAILOVER OF STATEFUL CONNECTIONS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$0	\$0	\$755	07/09/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
WANG, LIANG CHE A	2453	709-230000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,096	09/12/2003	Brian D. Petry	ASTU-006/01US 017622-2017	6582
23419	7590	04/09/2009	EXAMINER	
WANG, LIANG CHE A.				
COOLEY GODWARD KRONISH LLP ATTN: Patent Group Suite 1100 777 - 6th Street, NW Washington, DC 20001			ART UNIT	PAPER NUMBER
			2453	
DATE MAILED: 04/09/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 680 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 680 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/661,096

Applicant(s)

PETRY ET AL.

Examiner

Liangche A. Wang

Art Unit

2453

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 2/23/09.
2. ☒ The allowed claim(s) is/are 1, 4-11, 14-18, 21-24, 27-40 (renumbered as 1-32).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Liangche A. Wang/
Primary Examiner, Art Unit 2453

EXAMINER'S AMENDMENT

1. Claims 1, 4-11, 14-18, 21-24, 27-40 are allowed.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with Steven C. Tietsworth on 4/3/09.
4. The application has been amended as follow:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (Currently Amended). A method of facilitating failover of a stateful protocol connection from a proxy element to a standby proxy, the method comprising:

receiving, at the proxy element, data sent by a first external entity in accordance with a first stateful protocol connection;

withholding acknowledgment of receipt of the data at the proxy element until a predefined operation involving the data has been performed, ~~said predefined operation being performed subsequent to the receipt of the data and being other than determining the data has been satisfactorily received~~ said predefined operation comprising:

sending, from the proxy element, the data to a second external entity; and

receiving, at the proxy element, a second acknowledgment that the data has been received at the second external entity;

establishing a state information connection between the proxy element and the standby proxy;

transferring, via the state information connection, state information relating to the first

stateful protocol connection from the proxy element to a standby proxy; and

 sending, from the proxy element, the acknowledgment of receipt to the first external entity subsequent to performance of the predefined operation involving the data.

2 (Cancelled).

3 (Cancelled)

4 (Currently Amended). The method of claim 3-1 wherein the sending of the data to the second external entity is performed in accordance with a second stateful protocol connection, the method further including transferring state information relating to the second stateful protocol connection to the standby proxy.

5 (Original). The method of claim 1 further including failing over the first stateful protocol connection to the standby proxy.

6 (Original). The method of claim 4 further including failing over the second stateful protocol connection to the standby proxy.

7 (Original). The method of claim 1 further including:
 transmitting, from the first external entity, the data to the proxy element and retaining a copy of the data; and
 deleting the copy of the data upon receipt at the first external entity of the acknowledgment.

8 (Original). The method of claim 1 wherein the transferring of the state information is performed in accordance with an additional stateful protocol connection.

9 (Original). The method of claim 5 further including beginning servicing, at the standby proxy, the first stateful protocol connection from a last successful point of

synchronization between the proxy element and the standby proxy.

10 (Original). The method of claim 1 further including detecting, at the standby proxy, failure of the first stateful protocol connection and initiating failover of the first stateful protocol connection from the proxy element to the standby proxy.

11 (Currently Amended). A method of facilitating failover of a stateful protocol connection, the method comprising:

receiving, at a primary system, data sent by a first external entity in accordance with the stateful protocol connection;

withholding acknowledgment of receipt of the data until a predefined operation involving the data has been performed, said predefined operation comprising:

sending the data to a host entity; and

receiving confirmation that the data has been received at the host entity;

establishing a state information connection between the primary system and a standby system;

transferring, via the state information connection, state information relating to the stateful protocol connection to the standby system; and

sending, from the primary system, the acknowledgment of receipt to the first external entity subsequent to performance of the predefined operation involving the data, said predefined operation being performed subsequent to the receipt of the data and being other than determining the data has been satisfactorily received.

12 (Cancelled).

13 (Cancelled).

14 (Original). The method of claim 11 further including failing over the stateful protocol connection to the standby system.

15 (Original). The method of claim 11 wherein the transferring of the state information is performed in accordance with an additional stateful protocol connection.

16 (Previously Presented). The method of claim 14 further including beginning servicing, at the standby system, the stateful protocol connection from a last successful point of synchronization between the proxy element and the standby system.

17 (Previously Presented). The method of claim 11 further including detecting, at the standby system, failure of the stateful protocol connection and initiating failover of the stateful protocol connection to the standby system.

18 (Currently Amended). A stateful protocol processing apparatus comprising:
a proxy element having a first protocol core and a second protocol core, the first protocol core supporting a first stateful protocol connection over which data is received from a first external entity and the second protocol core supporting a second stateful protocol connection to a second external entity over which the data is transmitted, wherein the proxy element is configured to withhold acknowledgment of receipt of the data until a predefined operation involving the data has been performed and to send the acknowledgment of receipt to the first external entity subsequent to performance of the predefined operation, ~~said predefined operation being performed subsequent to the receipt of the data and being other than determining the data has been satisfactorily received~~ said predefined operation comprising receiving, at the proxy element, a second acknowledgment that the data has been received at the second external entity;
and

a standby element having a state information connection to the proxy element to which state information relating to the first stateful protocol connection is transferred from the proxy element to the standby element via the state information connection.

19 (Cancelled).

20 (Cancelled).

21 (Previously Presented). The apparatus of claim 18 further including a switch disposed to failover the first stateful protocol connection from the proxy element to the standby element.

22 (Previously Presented). The apparatus of claim 21 further including a failure detection unit configured to detect failure of the first stateful protocol connection and to command the switch to initiate said failover, the standby element beginning servicing of the first stateful protocol connection from a last successful point of synchronization between the proxy element and the standby element.

23 (Previously Presented). The apparatus of claim 18 wherein the standby element includes memory in which is stored the state information relating to the first stateful protocol connection.

24 (Currently Amended). A method of facilitating failover of a stateful protocol connection, the method comprising:

receiving data sent by a first external entity in accordance with the stateful protocol connection;

establishing a state information connection to a standby system;

transferring, via the state information connection, state information relating to the stateful protocol connection to the standby system;

withholding acknowledgment of receipt of the data until a predefined operation involving the data has been performed ~~wherein the predefined operation is other than determining the data has been satisfactorily received; said predefined operation comprising:~~

sending the data to a host entity;

receiving confirmation that the data has been received at the host entity; and

storing the state information in memory within the standby system, wherein

the predefined operation being is performed subsequent to the receipt of the data and ~~including storing the state information in memory within the standby system; and~~

sending the acknowledgment of receipt to the first external entity subsequent to performance of the predefined operation involving the data.

25 (Cancelled).

26 (Cancelled).

27 (Currently Amended). The method of claim 1 wherein the state information connection between the proxy element and the standby proxy is a second stateful protocol connection.

28 (Previously Presented). The method of claim 27 wherein the second stateful protocol connection is a TCP connection.

29 (Previously Presented). The method of claim 1 wherein the state information is transferred from a first memory associated with the proxy element to a second memory associated with the standby proxy.

30 (Previously Presented). The method of claim 1 wherein the state information is transferred only after a stateful protocol connection has been established between the proxy element, an external client and an external server, and data has been transferred between the external client and the external server.

31 (Previously Presented). The method of claim 1 wherein the state information is transferred during establishment of a stateful protocol connection between the proxy element, an external client and an external server.

32 (Previously Presented). The method of claim 1 wherein the proxy element sends the acknowledgment of receipt to the first external entity prior to receiving a confirmation from the standby proxy that the state information has been transferred.

33 (Previously Presented). The method of claim 1 wherein all of the state information is transferred during an initial synchronization operation between the proxy element and the standby proxy.

34 (Previously Presented). The method of claim 33 wherein only changes to the state information transmitted during the initial synchronization operation are transferred during a subsequent synchronization operation.

35 (Previously Presented). The method of claim 1 wherein the state information is transferred during a first synchronization operation between the proxy element and the standby proxy, and wherein only changes to the state information are transmitted during a second, subsequent synchronization operation between the proxy element and the standby proxy.

36 (Previously Presented). The method of claim 5 wherein said failing over the first stateful protocol connection to the standby proxy is initiated based on an automatic discovery scheme.

37 (Previously Presented). The method of claim 36 wherein the automatic discovery scheme comprises determining failure of a heartbeat packet within a defined timeout period.

38 (Previously Presented). The method of claim 5 wherein said failing over the first stateful protocol connection to the standby proxy is initiated based on an external discovery scheme.

39 (Previously Presented). The method of claim 38 wherein the external discovery scheme comprises detecting failure of the proxy by an external failure detection entity.

40 (Previously Presented). The method of claim 39 wherein the external detection entity commands a switch to redirect packets destined for the proxy element to the standby proxy.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liangche A. Wang whose telephone number is (571)272-3992. The examiner can normally be reached on Monday thru Friday, 8:30 am to 5:00 pm.
7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/661,096
Art Unit: 2453

Page 10

Liang-che Alex Wang
April 7, 2009

/Liangche A. Wang/
Primary Examiner, Art Unit 2453